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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/003,702 | 12/06/2001 | Randel Brandstrom | 84807-132 ADB | 2523 |
| 23529 | 7590 | 12/17/2003 | EXAMINER | |
| ADE & COMPANY 1700-360 MAIN STREET WINNIPEG, MB R3C3Z3 CANADA | | | AFTERGUT, JEFF H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1733 | |

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------------|--------------------|------------|
| Office Action Summary | Application No. | Applicant(s) | <i>OBH</i> |
| | 10/003,702 | BRANDSTROM, RANDEL | |
| | Examiner Jeff H. Aftergut | Art Unit 1733 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-21 is/are pending in the application.
 - 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-21 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) Interview Summary (PTO-413) Paper No(s). ____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: ____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1- 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thicthener et al in view of White , either one of Coonrod or Scott and either one of Zion or Kaiser '700.

Thicthener et al suggested that it was known at the time the invention was made to form a threaded rod which included the steps of providing a longitudinally continuous fiber structure formed from a plurality of fibers which were impregnated with a settable resin. The fibers 20 were supplied from spools 21 and impregnated in a bath 22 to provide a resin impregnated cable 23. It appears that subsequent to impregnation the fibers were in the form of a rod (collated into the same) wherein the resin-impregnated fibers were referred to by Thicthener as a cable of continuous longitudinally disposed fiber. The cable 23 was then stated to be disposed in a die which was generally cylindrical and formed from a plurality of die parts 24a, 24b, and 29. The die parts (in particular parts 24a and 24b as well as part 29 were capable of being opened in a direction which is transverse to the length of the rod (see Figure 4). The interior of the die was provided with a continuous thread structure as defined at 31. The reference additionally suggested that the mold portions 24a, 24b and 29 were closed onto the cable of resin impregnated fibers 23 and pressure was applied to form the threads into the resin impregnated fibers while the cable was disposed within the die, see claim 1, column 3, lines 18-17, and column 5, lines 64-68. The reference additionally suggested as depicted in Figures 5 and 6 (as

well as 16) that the longitudinal fibers of the cable would have been forced into the threads and formed continuous length reinforcement which spanned the length of the formed threads as well as was actually disposed within a portion of the thread. The reference also suggested that the resin of the cable disposed within the die was set prior to opening of the die (see column 6, lines 15-21, for example). The reference additionally suggested that the rod was pulled with windlass 39 in order to remove the previously set and shaped portion as well as to facilitate placement of the next segment to be shaped in the die within the same. Thicthener taught all of the basic portions of the claimed process including the application of pressure in order to form the threads wherein a portion of the continuous length fibers were disposed within the threads themselves (applicant is additionally referred to column 7, lines 21-23), however the reference failed to expressly state that in the molding operation as depicted in Figures 3 and 4 that the fibers would have been projected into the threads (as noted above such was depicted in Figure 6 for example). Additionally, the reference did not expressly state that one skilled in the art would have heated the die in order to set the resin of the resin-impregnated cable. It should be noted that Thicthener suggested suitable resins for the operation which included conventional thermosetting resins like epoxy, vinyl ester, polyester, and phenolic resins.

However, when making a threaded rod with resin impregnated fibers in a die which was closed about the resin impregnated fibers, it was known as evidenced by White that those skilled in the art of molding a threaded rod would have forced the resin as well as the fibers into the threads when the mold was closed as well as would have heated the mold segments in order to cure the resin in the resin impregnated composite material, see Figures 4,5,7, 8, column 1, line 60-column 2, line 55, column 3, lines 42-50. It is clear that those skilled in the art at the time the

invention was made would have known that the mold segments of Thicthener would have been heated in order to set the thermosetting resin therein when forming the thread upon the rod.

Additionally, the reference to White suggested that those skilled in the art would have readily appreciated the desirability of incorporation of the fibers in the threads of the threaded rod (note that Thicthener suggested that the filaments would have been disposed into the threads of the rod). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ heat to cure the material within the die when forming threads in a rod which included reinforcing fibers therein as suggested by White when making the threaded rod as suggested by Thicthener.

It should be noted that in White the fibers are directed about the threads of the article rather than in a direction perpendicular to the threads as suggested by Thicthener. However, one skilled in the art of manufacturing a threaded member from fiber reinforced composite materials would have readily appreciated that the fibers which were disposed in the longitudinal and machine direction in Thicthener would have been disposed in the threads of the finished assembly as evidenced by either one of Scott or Coonrod. More specifically, Coonrod and Scott both suggested that when making a threaded member from fiber reinforced materials wherein the fibers disposed in the threaded member were disposed along the length of the threaded member and the fibers were disposed into the threads of the members during the molding operation, see column 3, lines 29-32, lines 40-41, and lines 45-54 of Scott and column 6, lines 39-47 and lines 54-62 of Coonrod. Clearly, those skilled in the art at the time the invention was made would have recognized the desirability of forcing the longitudinally extending filaments of Thicthener into the grooves of the mold to undulate the same (as depicted by Thicthener) as a desirable

result and that such would have happened in the molding operation of Thicthener. It should be noted that the mold in Thicthener was several mold pieces and not simply two mold halves which were united to apply heat and pressure in the molding operation and which were also moved along a track in order to advance the product through the system. However such molding arrangements for manufacture of fiber reinforced composites (and in particular rebar) was known per se in the art as evidenced by either one of Zion or Kaiser '700.

Both Zion and Kaiser '700 suggested the molding of the fiber reinforced product via a molding operation which involved the bringing together of two mold halves and the shaping of the materials as well as application of heat to set the unset resin impregnated materials in the dies to the shape of the dies in the molding operation. The mold halves are fed on tracks or drive belts which continuously operate in order to continuously pull the material through the operation. It should be noted that in Kaiser '700 the reference taught the formation of a rebar material (which is what Thicthener was manufacturing). Because it would have provided for smooth and continuous operation, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the techniques of either one of Zion or Kaiser '700 to form continuously a rebar product which included fibers which were continuous along the length of the product and which were disposed into and out of the threads of the finished threaded product as suggested was desirable by either one of Coonrod or Scott wherein the portions were formed in a molding operation as suggested by White where heat and pressure were applied in the mold as one continuously formed the threaded end product as taught by Thicthener.

With regard to claim 2, note that an inserted was disposed within the mold in order to form a hollow central portion of the threaded rod in Thicthener. Regarding claim 3, note that the

inserter can remain as part of the finished end product and thus a “tubing core” would have been provided within the rod as suggested by Thicthener. Applicant is referred to column 5, lines 23-35, for example). With respect to claims 4-21, the references to Zion and Kaiser ‘700 suggested that those skilled in the art would have employed the die halves in the molding operation in order to continuously produce the molded products.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as set forth above in paragraph 2 further in view of Carmine.

While the references as set forth above in paragraph 2 suggested one skilled in the art would have known that the inserted could have been retained in the finished end product wherein the same would have provided a tubing therein. The reference to Carmine suggested that those skilled in the art were aware of the use of tubing which remained as part of a finished end product which had corrugations formed on the exterior of the same in a molding operation wherein the fibers of the end product were continuous longitudinal fibers which were disposed into the corrugation of the finished end product. Such tubing is taken as conventional in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the techniques of Carmine to provide a tubing within the core when molding threads into a rod as set forth above in paragraph 2 when it was desired to provide a hollow core for the threaded rod.

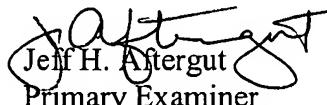
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 703-308-2069. After

December 18, 2003, the examiner can be reached at 571-272-1212. The examiner can normally be reached on Monday-Friday 6:30-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 703-308-3853. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Jeff H. Aftergut
Primary Examiner
Art Unit 1733

JHA
December 14, 2003